

AMENDMENTS TO THE CLAIMS

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The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

CLAIMS

1. (Currently Amended) A method for resource allocation in a packet transmission network including at least one link comprising (19), characterized by the following steps:

- determining link resource status;
- if link congestion is determined then
 - (a) determining if it is possible to allocate more link capacity;
 - (b) allocating more link capacity when it is possible to allocate more link capacity;
 - (c) alleviating link congestion using Active Queue Management when it is not possible to allocate more link capacity.

2. (Currently Amended) A method for resource allocation according to claim 1, further comprising the steps of characterized by

- defining in a buffer (13, 14) for said at least one link (19), a congestion threshold (T_h) for packet queue size within said buffer (13, 14); and
- using said congestion threshold (T_h) to detect link congestion when the packet queue size exceeds said congestion threshold (T_h).

3. (Currently Amended) A method for resource allocation according to claim 2, further comprising characterized by

- adjusting the congestion threshold (T_h) depending on link capacity.

4. (Currently Amended) A method for resource allocation according to claim 2, further comprising or 3, characterized by

- adjusting the congestion threshold (Th) depending on whether or not a packet is dropped/mark.

5. (Currently Amended) A method for resource allocation according to claim 2,
further comprising any of the claims 2-4, characterized by

- adjusting the congestion threshold depending on buffer delay for a packet in the queue.

6. (Currently Amended) A method for resource allocation according to claim 2,
further comprising any of the claims 2-5, characterized by

- defining in the buffer (13, 14) a maximum threshold ($Th_{AQM_{max}}$) and a minimum threshold ($Th_{AQM_{min}}$) for packet queue size within said buffer (13, 14).

7. (Currently Amended) A method for resource allocation according to claim 1,
further comprising any of the claims 1-6, characterized by

- allocating link capacity by changing from a common channel to a dedicated channel.

8. (Currently Amended) A method for resource allocation according to claim 1,
further comprising any of the claims 1-6, characterized by

- allocating link capacity by changing from a channel with a low bit rate to a channel with a higher bitrate.

9. (Currently Amended) A method for resource allocation according to claim 1,
further comprising characterized by the following steps

- determining cell resource status;
- if cell congestion is detected then
 - (a) determining that it is necessary to switch down bit rate or rates in at least one link (19);
 - (b) alleviating link congestion using Active Queue Management (16, 17);
 - (c) switching down said bit rate or rates.

10. (Currently Amended) A method for resource allocation according to claim 9,
further comprising characterized by

- alleviating link congestion for all links (19).

11. (Currently Amended) A method for resource allocation according to claim 9, further comprising characterized by

- alleviating link congestion only for the links (19) where link congestion is likely to occur.

12. (Currently Amended) A method according to claim 1, further comprising characterized by the following steps

- if low usage of a link (19) is detected then
(a) determining if it is possible to decrease the link capacity without problems;
(b) allocating less link capacity, when possible.

13. (Currently Amended) A method according to claim 1, further comprising any of the claims 1-12, characterized by

- alleviating link congestion by dropping or marking packets.

14. (Currently Amended) A method according to claim 2, further comprising any of the claims 2-13, characterized by

- using Active Queue Management separately for each buffer (13, 14).

15. (Currently Amended) A method according to claim 2, further comprising any of the claims 2-13, characterized by

- using a general Active Queue Management for a number of buffers (13, 14); and
- controlling the average traffic in the links associated with said buffers (13, 14).

16. (Currently Amended) An arrangement for resource allocation in a packet transmission network including at least one link (1), characterized in that the arrangement comprising: includes

- a resource management (18) arranged to determine link resource status and arranged, if a link congestion status is determined, to determine if it is possible to allocate more link capacity, to allocate more link capacity when it is possible to allocate more link capacity, and to enable to alleviate alleviation of link congestion

using Active Queue Management (16, 17) when it is not possible to allocate more link capacity.

17. (Currently Amended) An arrangement for resource allocation according to claim 16, wherein characterized in that the arrangement includes a buffer (13, 14) for said at least one link (19), said buffer (13, 14) including a congestion threshold (T_h) for packet queue size within said buffer (13, 14), and in that said congestion threshold (T_h) is arranged to detect link congestion when the packet queue size exceeds said congestion threshold (T_h).

18. (Currently Amended) An arrangement for resource allocation according to claim 17, wherein characterized in that the congestion threshold (T_h) is arranged to be adjusted depending on the link capacity.

19. (Currently Amended) An arrangement for resource allocation according to claim 17, wherein or 18, characterized in that the congestion threshold (T_h) is arranged to be adjusted depending on whether or not a packet is dropped/mark.

20. (Currently Amended) An arrangement for resource allocation according to any of the claims 17, wherein to 19, characterized in that the congestion threshold (T_h) is arranged to be adjusted depending on buffer delay for a packet in the queue.

21. (Currently Amended) An arrangement for resource allocation according to any of the claims 17, wherein to 20, characterized in that the buffer (13, 14) includes a maximum threshold ($T_{h_{AQMMax}}$) and a minimum threshold ($T_{h_{AQMMin}}$) for packet queue size within said buffer (13, 14).

22. (Currently Amended) An arrangement for resource allocation according to claim 16, wherein characterized in that the resource management (18) is arranged to determine cell resource status, and arranged, if cell congestion is detected, to determine that it is necessary to switch down bit rate or rates in at least one link (19), to enable to alleviate link congestion using Active Queue Management (16, 17), and to switch down said bit rate or rates.

23. (Currently Amended) An arrangement for resource allocation according to claim 16, ~~wherein characterized in that~~ the resource management (18) is arranged, if low usage of a link (19) is detected, to determine if it is possible to decrease the link capacity without problems, and to allocate less link capacity, when possible.

24. (Currently Amended) An arrangement for resource allocation according to ~~any of the claims 17-23, characterized in that~~ claim 17, wherein Active Queue Management is arranged to work separately for each buffer (13, 14).

25. (Currently Amended) An arrangement for resource allocation according to ~~any of the claims 17-23, characterized in that~~ claim 17, wherein Active Queue Management is arranged to work for a number of buffers (13, 14) and to control the average traffic in the links (19) associated with said buffers (13, 14).